Twenty-First Meeting of the Cross Polar Trans East Air Traffic Management Providers' Work Group (CPWG/21)

(Montreal, Canada, 17-20 May 2016)

Agenda Item 5: Provide Status on CPWG/20 Actions

Implementation Automatic Dependent Surveillance- Contract (ADS-C) Climb/Descent Procedure (CDP)
(Action Item CP14-12)

Presented by the United States (U.S.) Federal Aviation Administration (FAA)

SUMMARY

This paper presents information on development of automation and procedures to support use of the ADS-C CDP in the FAA's Oceanic Flight Information Regions (FIRs).

1 Introduction

1.1 The Automatic Dependent Surveillance – Contract (ADS-C) Climb/Descend Procedure (CDP) is designed to improve service to properly equipped aircraft by allowing an oceanic air traffic controller to have an option for granting an altitude change request when other standard separations, such as ADS-C distance-based 30 nautical miles (NM) longitudinal separation minima, do not allow for a climb or descent through the altitude of a blocking aircraft. It is an air traffic control tool to be applied between maneuvering and blocking aircraft pairs.

1.2 The U.S. FAA developed the ADS-C CDP to utilize existing user equipage and air traffic control (ATC) capabilities to allow more oceanic flights to achieve their preferred vertical profiles. The ADS-C CDP is a component of the Oceanic Trajectory Based Operations (OTBO) program, a critical Next Generation Air Transportation System (NextGen) capability that addresses current performance gaps in the area of capacity, productivity, and efficiency in the oceanic environment. Integral to ADS-C CDP is the use of advanced communication, navigation, and surveillance (CNS) capabilities, such as ADS-C, Controller-Pilot Data Link Communications (CPDLC), and Required Navigation Performance (RNP).

1.3. This procedure is based on in-trail Distance Measuring Equipment (DME) rules in ICAO Doc 4444, paragraph 5.4.2.3. Aircraft pair distance verification is performed by the Advanced Technologies & Oceanic Procedures (ATOP) automation system, using near simultaneous ADS-C demand contract reports. As with the existing DME procedure, responsibility for separation assurance remains with ATC.

1.4. ADS-C CDP enables oceanic airspace users to benefit from the surveillance provided by ADS-C, and thus to more efficiently use airspace. Specifically, ADS-C surveillance enables climb-through and descend-through maneuvers with less than standard separation (15 NM or 25 NM depending on the aircraft pair relative speeds). As such, controllers can clear qualified aircraft to climb or descend through the altitude of what would otherwise be a blocking aircraft.

This ability to maneuver around blocking aircraft will allow aircraft to optimize flight levels over long distance flights, thus reducing fuel burn and emissions. This CDP supports the FAA's goals for fuel efficiency, emission reductions, and increasing air traffic capacity with existing equipment.

1.5. A successful two year manual trial of ADS-C CDP was conducted within the Oakland Oceanic CTA between February 2011 and February 2013. Due to the inherent limitations of the manual trial, the trial was not extended. The FAA began efforts to automate the procedure in ATOP and work began at the International Civil Aviation Organization (ICAO) Separation and Airspace Safety Panel (SASP) to incorporate the ADS-C CDP as a global standard in the Procedures for Air Navigation Services- Air Traffic Management (PANS-ATM) Doc. 4444.

1.6. This paper provides updates on automation development and planned ADS-C CDP implementation in the FAA's oceanic FIRs.

2 Discussion

ICAO and FAA Procedures Development

2.1 Following work conducted at SASP, a Proposal for Amendment (PfA) to PANS-ATM Doc. 4444 was developed and circulated to ICAO States for comment beginning in June 2015 via State Letter AN 13/2.5-15/45. At the 200TH Session, Eigth Meeting of the ICAO Air Navigation Commision it was agreed that the ADS-C CDP will be published as a global standard in Amendment 7 to the PANS-ATM effective November 10, 2016 (see Attachment A).

2.2. The FAA is completing its procedure development for FAA Order JO 7110.65, Air Traffic Control, and the U.S. Aeronautical Information Publication (AIP). Collision risk modeling and other required Safety Management System (SMS) work has also been completed and approved.

2.3. The ATOP automation is available at all three facilities and is undergoing testing. Additionally, controller training and publication of the procedure either by State Letter from ICAO or in PANS-ATM Doc. 4444 is required prior to implementation. The FAA anticipates that the State Letter will be published within the next few months and the procedure will be available for use by mid-CY2016.

3 Recommendation

3.1. The Meeting is invited to note the information provided in this paper.